

REMARKS

In the Office Action, the Examiner rejected claims 1-27 and 37-50. By the present Response, Applicants have canceled claim 41 and amended claims 38 and 42. Upon entry of the amendments, claims 1-27, 37-40 and 42-50 will be pending in the present application. As discussed in detail below, Applicants respectfully traverse the rejections and assert that these pending claims are patentable and in condition for allowance. In view of the following remarks and the foregoing amendments, Applicants respectfully request reconsideration and allowance of all pending claims.

Rejection Under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1, 2, 5-9, 11, 12, 16, 21-27, 37, 39, 40, 42, and 46-50 under 35 U.S.C. § 102(b) as anticipated by the Rohrbaugh et al. reference (U.S. Patent No. 5,770,838). In rejecting the foregoing claims, the Examiner stated that:

Rohrbaugh shows an induction heating system, comprising: a power source operable to produce an alternating current to inductively heat a workpiece 52, 54 and 56, a controller 302 operable to control operation of the power source, wherein the controller is operable to receive programming instructions to selectively increase and decrease workpiece temperature to achieve different temperature profiles which is the same as "at a desired rate of change" as claimed in order to automatically control operation of the power source to provide inductive heat to the workpiece to o [sic] selectively increase and decrease the workpiece [sic] and a temperature feedback device (see col. 4, lines 42-51) operable to provide the controller with an electrical signal representative of the workpiece temperature (see all Figures and col. 6, line 21-col. 8, line 31). In regard to claims 2, 12, 40 and 42, the programmable controller inherently performed as a recorder for the temperature data (see Figures 6-10 and col. 8, lines 32-64). In regard to claims 5-8, 21-27, 37 and 46, it also shows the use a [sic] thermal model 308 and input device 306 for inputting control data to the programmable controller 302 for controlling the heating to achieve a specific temperature profile by increasing or decreasing power input (see Figure 3 and col. 4, lines 18-41).

Office Action mailed August 11, 2004, p. 2 (emphasis added). Respectfully, Applicants traverse this rejection. In short, Applicants respectfully assert that the Rohrbaugh et al. reference does not disclose all of the features recited in independent claims 1, 11, 16, 21, 37, 39 and 46.

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985). Thus, for a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Moreover, the prior art reference also must show the *identical* invention “*in as complete detail as contained in the ... claim*” to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). Accordingly, Applicants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter. With the foregoing in mind, Applicants respectfully assert that the cited reference fails to disclose all of the features recited in independent claims 1, 11, 16, 21, 37, 39 and 46.

In a general sense, each of the above-listed independent claims recites a device or controller that facilitates programmed control of an induction-heating device to effectuate a desired inductive-heating temperature rate of change, profile, or sequence for a workpiece. Specifically, these independent claims recite as follows:

Claim 1: “a controller operable to control operation of the power source, wherein the controller is operable to receive programming instructions to selectively increase and decrease workpiece temperature at a desired rate of change and to automatically control operation of the power source to provide inductive heat to the workpiece to selectively increase and decrease the workpiece temperature at the desired rate of change;

Claim 11: “a controller operable to control operation of the induction heating power source to increase workpiece temperature to an elevated temperature and to reduce workpiece temperature

from the elevated temperature to a lower temperature at a desired rate of temperature decrease automatically in response to programming instructions and the workpiece temperature data;”

Claim 16: “wherein the user interface enables a user to program the control unit to form a desired workpiece temperature profile by assembling a plurality of segments representative of a heating operation together;”

Claim 21: “wherein the user interface enables a user to establish a sequence of inductive heating operations to be performed automatically by the induction heating system from a selection of inductive heating operations;”

Claim 37: “wherein the user interfaces enables a user to establish a sequence of inductive heating operations from a selection of inductive heating operations that may be performed automatically by the induction heating system;”

Claim 39: “a controller operable to control operation of the power source automatically to heat the workpiece according to a desired workpiece temperature profile, wherein the controller is operable to heat the workpiece at a first rate of temperature increase during a first portion of the workpiece temperature profile and to heat the workpiece at a second rate of temperature increase during a second portion of the workpiece temperature profile, the second rate of temperature increase being different than the first rate of temperature increase;” and

Claim 46: “a controller operable to control operation of a power source electrically coupled to a heating device, wherein the controller provides a user with a menu of heating operations that may be programmed into the controller in any combination to establish a desired workpiece temperature profile.”

(Emphasis added.) Respectfully, Applicants assert that the Rohrbaugh et al. reference does not disclose, at a minimum, these above-quoted features.

In contrast to the subject matter of the above-quoted claims, and in contrast to the Examiner’s assertions, the Rohrbaugh et al. reference discloses an induction device that does not and that cannot effectuate a temperature profile for the workpiece. The Rohrbaugh et al.

reference discloses a device for heating a continuously moving combined metal strip 40 through a heating system 50. *See* Rohrbaugh et al., col. 3, ll. 15-20; FIG. 1. The heating system 50 includes a preceding heating section 52 and a following heating section 56 that are gas-fired tube heaters, and the system 50 also includes an induction heating section 54 that is located between the preceding and following heating sections. *See id.* at col. 3, ll. 10-15; col. 3, ll. 40-44; FIG. 1. The heating sections 52, 54, and 56 are coupled to a programmable control mechanism 300 that “directs the heating of the preceding heating section 52 and the following heating section 56 and the use of the induction heating section 54.” *Id.* at col. 4, ll. 20-23 (emphasis added).

Although the Rohrbaugh et al. reference discusses “temperature profiles,” the Rohrbaugh et al. reference makes vividly clear that these temperature profiles are established and effectuated in a manner wholly independent of the induction heating section 54. *See id.* at col. 6, ll. 50-55. Indeed, the Rohrbaugh et al. reference states that “[t]he temperature profiles are established in the first and following heating sections 52 and 56 and not the induction heating section 54.” *Id.* at col. 6, ll. 53-55 (emphasis added). Rohrbaugh et al. further state that “the temperature in the induction section 54 ... does not constitute a part of the temperature profile established by the control mechanism 300.” *Id.* at col. 6, ll. 60-64 (emphasis added). Thus, Applicants respectfully assert that the Rohrbaugh et al. reference does not disclose an induction device in which “temperature profiles” are effectuated by an induction device.

Moreover, Applicants respectfully assert that the induction heating section 54 disclosed in the Rohrbaugh et al. device operates at a single power level, and, as such, the controller 300 merely transitions the induction heating section 54 between “on” and “off” states. In the Rohrbaugh et al. reference, an example of the operation of the described heating system 50 is provided. *See* Rohrbaugh et al., col. 9, l. 5 to col. 10, l. 57. In this example, the induction heating section 54 is described as either being “on” or “off,” and no reference is made to varying the operating parameters or the power source of the induction heating section 54. *See* Rohrbaugh et al., col. 9, ll. 36-43; col. 9, l. 66 to col. 10, l. 3; col. 10, ll. 15-20; col. 10; ll. 36-40. Indeed, as quoted above, the fact that the programmable control mechanism 300 of the Rohrbaugh et al.

device “directs the heating” of preceding and following heating sections 52 and 56, respectively, but only “directs the use” of the induction heating section 54 clearly evidences the “on” and “off” operation of the Rohrbaugh et al. induction heating section 54. *See id.* at col. 4, ll. 18-24 (stating that “in the preferred embodiment of the invention a programmable control mechanism 300 directs the heating of the preceding heating section 52 and the following heating section 56 and the use of the induction heating section 54”). Thus, Applicants respectfully assert that any assertion by the Examiner that the induction heating section 54 and the controller 300 of the Rohrbaugh et al. are operable to achieve a desired temperature profile by increasing or decreasing power input (e.g., Office Action mailed August 11, 2004, ¶ 2, ll. 13-17) is wholly unsupported by the reference.

For all of these reasons, Applicants respectfully submit that the subject matter of independent claims 1, 11, 16, 21, 37, 39 and 46, as well as the claims depending therefrom, are not anticipated by the Rohrbaugh et al. reference. Therefore, Applicants respectfully request reconsideration and allowance of claims 1, 2, 5-9, 11, 12, 16, 21-27, 37, 39, 40, 42 and 46-50.

First Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected dependent claims 3, 4, 10, 13-15, 17-19, and 43-45 under 35 U.S.C. § 103(a) as obvious in view of the Rohrbaugh et al. reference and the Jancosek et al. reference (U.S. Patent No. 4,845,332). Applicants respectfully traverse this rejection, because the cited references, taken alone or together, fail to disclose all of the features recited in the instant claims. Applicants note that claims 3, 4, 10, and 43 depend from independent claim 1, claims 13-15, 44 and 45 depend from independent claim 11, and claims 17-19 dependent from independent claim 16.

In rejecting dependent claims 3, 4, 10, 13-15, 17-19 and 43-45, the Examiner primarily relies on the Rohrbaugh et al. reference, and presents the Jancosek et al. reference solely for disclosure allegedly evidencing that “it is well known in an induction heating system having induction heaters 34-44 to use a plurality of temperature sensors, such as pyrometers 201, 203

and 205 with PID controllers 218, 219 and 220 in a programmable microprocessor 234 for controlling the heating temperature profile according to the feedback temperature information.” See Office Action Mailed August 11, 2004, p. 3. However, even if, *arguendo*, the Examiner’s assertion regarding the Jancosek et al. reference are correct, the Jancosek et al. reference still fails to obviate the deficiencies of the Rohrbaugh et al. reference as discussed above in relation to independent claims 1, 11 and 16. Accordingly, Applicants respectfully assert that dependent claims 3, 4, 10, 13-15, 17-19 and 43-45 are not only patentable for their respective dependencies on an allowable base claim, but also by virtue of the additional features recited therein.

With the foregoing in mind, Applicants respectfully request reconsideration and allowance of dependent claims 3, 4, 10, 13-15, 17-19 and 43-45.

Second Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims dependent claims 20 and 38 and under 35 U.S.C. § 103(a) as obvious in view of the Rohrbaugh et al. reference and the Fox et al. reference (U.S. Patent No. 5,266,764). Applicants respectfully traverse this rejection, because the cited references, taken alone or together, fail to disclose all of the features recited in the instant claims. Applicants note that claim 20 depends from independent claim 16 and that claim 38 depends from independent claim 37.

In rejecting dependent claims 20 and 38 the Examiner primarily relies on the Rohrbaugh et al. reference, and presents the Fox et al. reference solely for disclosure allegedly evidencing that “it is well known in an induction heating system having an induction heater 12 to use a portable unit 20 including a temperature controller and a power supply (see Figures 1 and 3 and col. 3, line 48-col. 4, line 60).” See Office Action mailed August 11, 2004, p. 4. However, even if, *arguendo*, the Examiner’s assertion regarding the Fox et al. reference are correct, the Fox et al. reference still fails to obviate the deficiencies of the Rohrbaugh et al. reference, as discussed above in relation to independent claims 16 and 36. Accordingly, Applicants respectfully assert

that dependent claims 20 and 38 are not only patentable for their respective dependencies on an allowable base claim, but also by virtue of the additional features recited therein.

With the foregoing in mind, Applicants respectfully request reconsideration and allowance of dependent claims 20 and 38.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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